

## Montana Board of Oil and Gas Conservation Environmental Assessment

**Operator:** XTO Energy, Inc.  
**Well Name/Number:** Brown State 41X-36  
**Location:** NE NE Section 36 T26N R52E  
**County:** Richland, **MT;** **Field (or Wildcat)** Wildcat

### Air Quality

(possible concerns)

Long drilling time: No, 25-35 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig 1000 HP to drill a single lateral horizontal Bakken Formation well, 18,215' MD/9010' TVD.

Possible H<sub>2</sub>S gas production: Slight possibility of H<sub>2</sub>S gas production.

In/near Class I air quality area: No, class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, if productive. DEQ air quality permit required.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Existing gas pipelines in the area.

### Water Quality

(possible concerns)

Salt/oil based mud: Yes, to long string/intermediate casing hole will use oil based invert drilling fluids. Horizontal hole to be drilled with brine water. Surface casing hole to be drilled with freshwater and freshwater mud.

High water table: Yes, high water table possible.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage, to West Charlie Creek adjacent to this location to the west and 1/4 of a mile to the north from this location.

Water well contamination: No, closest water wells are about 1 mile and further from this location. The wells are a mix of stock water and domestic water wells, from 24' to 260' in depth. Operator will drill a 1100'+ surface hole with freshwater and freshwater mud system and set 1100' of surface casing cemented to surface to protect groundwater.

Porous/permeable soils: No, sandy silty clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☒ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: \_\_\_\_\_

Comments: 1100' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent problems. Route ephemeral drainage around west side of location.

### Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None, utilizing exiting county roads and crossings.

High erosion potential: No, small cut up to 8.5' of cut and small fill up to 8.2', required.  
 Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.  
 Unusually large wellsite: No, large well site 430'X330'  
 Damage to improvements: Slight, surface use appears to be cultivated land.  
 Conflict with existing land use/values: Slight  
 Mitigation  
   \_\_\_ Avoid improvements (topographic tolerance)  
   \_\_\_ Exception location requested  
   X Stockpile topsoil  
   \_\_\_ Stream Crossing Permit (other agency review)  
   X Reclaim unused part of wellsite if productive  
   \_\_\_ Special construction methods to enhance reclamation  
   X Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).  
 Comments: Access will be over existing county roads, #201, 314 and 143. An access will be built from the existing county road into this location. Oil based drilling fluids will be recycled. Freshwater surface hole cuttings will be buried on site. Oil based drill cuttings will be buried in the lined reserve pit. Completion pit fluids will be hauled to a permitted saltwater disposal. Pit will be backfilled when dry. No concerns.

### Health Hazards/Noise

(possible concerns)  
 Proximity to public facilities/residences: Yes, residences, about 1 mile to the west and 1 ¼ miles to the south from this location.  
 Possibility of H2S: Slight  
 Size of rig/length of drilling time: Triple drilling rig 25 to 35 days drilling time.  
 Mitigation:  
   X Proper BOP equipment  
   \_\_\_ Topographic sound barriers  
   \_\_\_ H2S contingency and/or evacuation plan  
   \_\_\_ Special equipment/procedures requirements  
   \_\_\_ Other: \_\_\_\_\_  
 Comments: Adequate surface casing, 1100', cemented to surface with working BOP stack should mitigate any problems. Noise should not be a problems, sufficient distance from residence to rig should mitigate this.

### Wildlife/recreation

(possible concerns)  
 Proximity to sensitive wildlife areas (DFWP identified): None identified.  
 Proximity to recreation sites: None identified.  
 Creation of new access to wildlife habitat: No  
 Conflict with game range/refuge management: No  
 Threatened or endangered Species: Threatened or endangered species listed in Richland county by USFW service are Pallid Sturgeon, Piping Plover, Interior Lease Tern and Whooping Crane.  
 Mitigation:  
   \_\_\_ Avoidance (topographic tolerance/exception)  
   X Other agency review (DFWP, federal agencies, DSL)  
   \_\_\_ Screening/fencing of pits, drillsite  
   \_\_\_ Other: \_\_\_\_\_  
 Comments: Surface location is on Trust Land surface. Trust Lands will do surface EA. Surface location is a cultivated field with no live water nearby.

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### Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified

Mitigation

☐ avoidance (topographic tolerance, location exception)

☒ other agency review (SHPO, DSL, federal agencies)

☐ Other: \_\_\_\_\_

Comments: Surface location is on Trust Land surface. Trust Lands will do surface EA.  
Surface use appears to be cultivated land.

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### Social/Economic

(possible concerns)

☐ Substantial effect on tax base

☐ Create demand for new governmental services

☐ Population increase or relocation

Comments: Development well in an established producing spacing unit. No  
concerns.

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### Remarks or Special Concerns for this site

Development well in an existing spacing unit. A single lateral horizontal Bakken Formation well,  
18,215' MD/9010'TVD.

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### Summary: Evaluation of Impacts and Cumulative effects

No long term impact expected. Some short term impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki

(title): Chief Field Inspector

Date: February 18, 2010

Other Persons Contacted:

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(Name and Agency)

Montana Bureau of Mines and Geology, Groundwater Information Center  
website.

(subject discussed)

Water wells in Richland County

(date)

February 18, 2010

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Richland County

(subject discussed)

February 18, 2010 \_\_\_\_\_

(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_